STUDY ON SOME ANCIENT WOOL FABRICS UNEARTHED IN RECENT YEARS FROM XINJIANG OF CHINA

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Introduction

Xinjiang Uygur Autonomous Region of China is situated in the innermost Asia, which was necessarily passed by the ancient "Silk Road." Due to the influence of the continental climate, this region, especially in the south of Tianshan (the Tianshan Mountain), is arid and short of rain, and has been advantageous for the preservation of organic matters underground. And, the relics some thousand years old, including many silk, wool, cotton as well as flax weaves, could have been well preserved until now.

Since the end of the 19th century through the beginning of this century, the ancient fabrics unearthed from Xinjiang have been well known in the world, with excavating activities by some foreign explorers there. After the foundation of the People's Republic of China, with the development of archaeological undertakings in New China in the recent thirty years, many ancient weaves have been unearthed from the Xinjiang region, including mainly silk weaves from the Han (漢) to Tang (唐) Dynasties. Therefore, I have been long studying mainly on the silk fabrics. In the recent ten years, with the increase of ancient wool fabrics unearthed from Xinjiang, some shortcomings and mistakes have been revealed in the works which reported and discussed these wool fabrics, *i.e.* unsuitable names, error observation, unreal description as well as equation of the excavated place to the place of their production, etc. In my book *Weave and Embroidery*, I couldn't give a detailed introduction and discussion about these wool fabrics, although some mistakes were distinguished in it[1].

In the recent years, the ancient wool fabrics of Xinjiang have been unearthed from archaeological sites or graves such as Ruoqiang (若羌, ancient Loulan), Qiemo (且末), Minfeng (民豐), Luopu (洛浦), Bachu (巴楚), Yuli (尉犁), Hejing (和静), Shanshan (鄯善), Tuokexun (托克逊), etc. These sites and graves have been dated to between the 12th century B.C. and the 3rd through 4th centuries A.D., or to between the Chinese Shang (商) through Zhou (周) Dynasties and the beginning of the Northern and Southern Dynasties (南北朝). As the above-mentioned excavated wool fabrics haven't been published, many of them being not sorted out yet, we can not completely research on them now. In the present paper I have selected fourteen representative specimens, to introduce, from the wool fabrics dated to between the 2nd century B.C. and the 5th century A.D., which have been so far published and exhibited in China and abroad. I have raised some personal tentative views in this article in order to arouse the reader's interests in the study of the ancient weaving technology and cultural exchange between China and the west.

Description of wool fabrics

The fourteen wool fabrics can be classified into three categories, *i.e.* pile weaves (Category I), gilim or kilim weaves (tapestry weaves: 戳(綴)織物) (Category II), and weft-backed and warp-wadding weaves (weft-faced compound weaves) (Category III). The details of the categorization are presented below.

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I. Category I: Pile weaves

i. Pile carpet (Plate 1-a): unearthed from Yinpan (營盤) of Yuli, Xinjiang; dated to the 3rd through 4th centuries A.D.

ii. Horse saddle pile rug (Plate 1-b): unearthed from Sanpula (山普拉) of Luopu, Xinjiang; dated to the 1st through 2nd centuries A.D.

iii. Fragment of a rhombus pattern carpet (Plate 2-b).

iv. Fragment of a pile carpet (Plate 2-c): these two fragments were unearthed together from Niya (尼雅) of Minfeng, Xinjiang; dated to the 3rd century A.D.

v. Fragment of a pile carpet (Plate 3-a): unearthed from Gutai (孤台) Grave B2, Loulan site of Ruoqiang, Xinjiang; dated to the 3rd through 4th centuries A.D.[2].

vi. Fragment of a pile carpet (Plate 3-b): unearthed from Tuokuzisalai (脱庫孜沙来) of Bachu, Xinjiang; dated to the 5th century A.D.[3].

vii. Fragment of double-faced woolen pile fabric (Plate 4-a): from the place and period from which Specimen v derived.

These seven pile weaves can be divided into two types in the appearance of pile-knotted faces:

Type 1: Single-faced pile fabrics (Specimens i to vi).

Type 2: Double-faced pile fabric (Specimen vii).

There are three styles classified by their knotting ways:

Style A (Specimens i to v): Ghiordes knot, also called "Turkish knot" or "horse-hoof knot" in Chinese custom; the remaining length of the pile end is 1.5 to 2.0 cm.

Style B (Specimen vi): Senna knot, also called "Persian knot" or "8-shaped knot" in Chinese custom; this specimen has been mistaken for "Turkish knot"[4].

Style C (Specimen vii): Half of annular knot, which we can call "U-shaped knot", whose shape is like Letter "U", such as Specimen vii tied with "U-shaped knot" on the both faces; the remaining length of the pile end is 1.3 to 1.5 cm on the face and 0.5 cm on the back.

These seven pile weaves are all made of sheep wool or cashmere, and are plain weave on the ground. Among them, Style A of Type 1 is intermittent knotting row; three to four paired wefts or four to six wefts are used per one row of pile knot. These wefts make the plain intermittent weft to tighten pile knots (平織間歇固結緯). The ground warp is spun with white and brown fibres, or is the thread plied with two wool yarns, white and brown in natural colour. The ground weft is single or paired wefts of wool, white or brown in natural colour. All of the pile knots are a pair of coloured woolen pile yarns, tied in Ghiordes knot (Fig. 1).

Specimen vi belongs to Style B of Type 1. The ground warp and weft wool yarns are the same as Style A, and its tightening weft is the one line weft (three parallel wefts). A pair of coloured woolen yarns are tied in Senna knot. There are two lines of the tightening weft and two lines of pile knot per centimeter in vertical way. They correspond to the modern 200-line pile carpet (Fig. 2).

Specimen vii belongs to Style C of Type 2. Both of its ground warp and weft are made up of plied threads of pure white sheep wool. The ground warp is made up of a single two-plied thread, while the ground weft is made up of five or six parallel two-plied threads, identical to the ground two-plied warp, and is composed of one thick weft thread. It is plain weave, and exhibits warp rib weave appearance. Every row of weft threads occupies the position corresponding to three parallel two-plied weft threads. Its face and back are alternately tied in "U-shaped knot", which is in the ratio 1/1 with the tightening weft; the face side ties a row of knots and weaves a line of tightening weft (ground weft), while the back side ties a row of

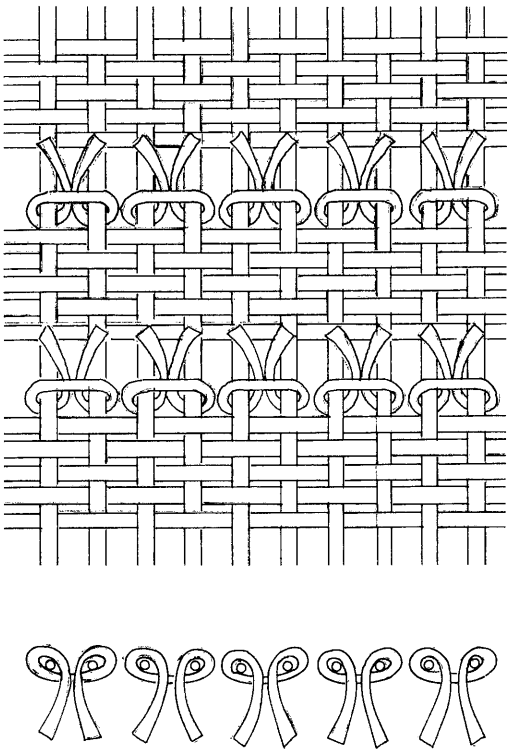

Fig. 1 Style A structure of pile weave: "Ghiordes knot" seen on Specimens i to v

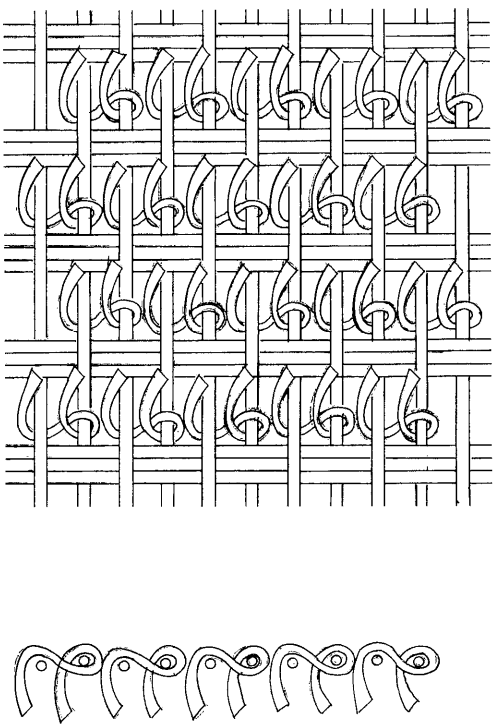

Fig. 2 Style B structure of pile weave: "Senna knot" seen on Specimen vi

knots and weaves one row of tightening weft, and cycle so on (Fig. 3). On one side of the weave, there is seen a loose selvage remained.

Many of the pile weaves mentioned above, especially Specimens ii, iv and vii, still preserve original and gorgeous colour. Five of the seven specimens, other than Specimens i and ii, are fragmentary, and we can tell neither the colours in their complete forms nor the disposition of their patterns. However, we can identify their colour geometry on the remaining parts.

Specimen i is an intact carpet, with its pattern designed with pile yarns, red, yellow, lake-blue, tea-green, brown, white and sea-blue in colour. The pattern is double-framed large-border with two-way successive rhombus pattern in it. The main pattern on the large ground is a patternized single animal (lion?), which is a suitable pattern for it (Plate 1-a).

Specimen ii is a pile saddle rug with leaf pattern. This saddle rug is approximately square in shape on the whole. The pattern is designed with pile, light red, tea-green, tangerine, orange, lake-blue, tobacco-like, deep blue, dark green, white and black in colour. The center pattern is a large square frame, made up of little rhombuses with leaf-shaped patterns (or called "tree with base" pattern: 有基樹紋) inserted respectively. The large border of four-sides (or circuitous) is composed of successive patterns of square-tortuous-lines and melon leaves. The outermost and narrow border, on the other hand, is composed of small coloured squares and oblique lines, both in geometric disposition (Plate 1-b).

All of these seven pile weaves are carpets. Specimens i and ii are intact. Specimen i is rectangular and large, and is thought to have been a carpet or tapestry. Judging from face pile's condition of wearing and tearing on the carpet, this specimen may have been used on a floor for a long time. Specimen ii, which is small and was on the horse saddle when unearthed, certainly was a saddle rug. Specimens iii, v and vi, of which pile ends have been worn and torn seriously, may have belonged to a fragment of a carpet. The

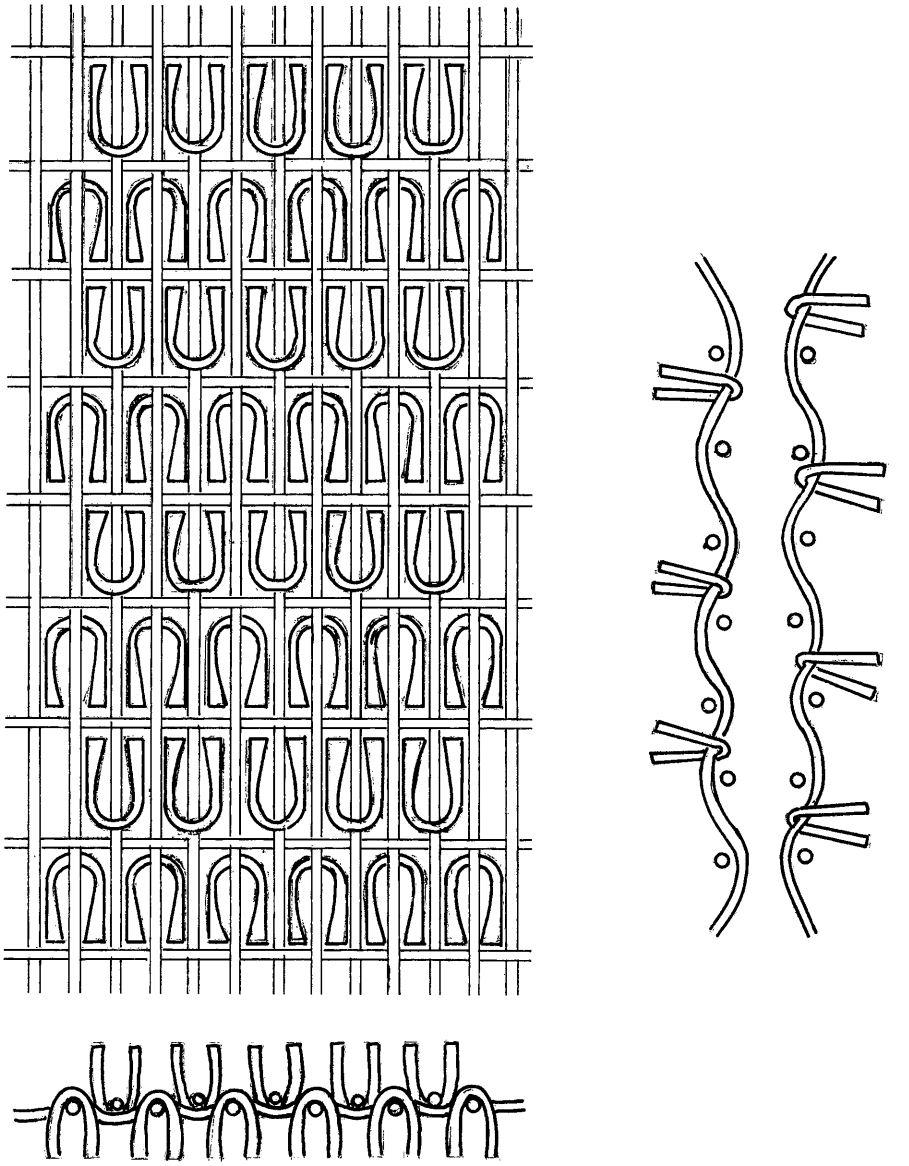

Fig. 3 Style C structure of pile weave: "U-shaped knot" seen on Specimen vii

pile knot of Specimen iv, also fragmentary, is 1.7 to 2.0 cm long, without obvious marks of wearing and tearing. The original way of use of this specimen is unknown. The pile knot on the back of Specimen vii is heavily torn and feltized. This tearing seems to have resulted from body's friction and sweat soaking. So, this specimen may have been originally used as a mattress or quilt.

II. Category II: Gilim or kilim weaves (tapestry weaves)

viii. Lace woven with dragon pattern on blue-green ground (Plate 4-b).

ix. Lace woven with animal pattern in successive squares (Plate 5-a).

These two specimens were unearthed from Sanpula Grave 02 of Luopu, Xinjiang, dated to between the 2nd century B.C. and the 1st century B.C., or to the Chinese Western Han Dynasty.

x. Fragment of a skirt with patch-woven pattern, produced by gilim weave technique, of twin flowers and trailing grass of lace-type on the dark-red ground (Fig. 6, Plate 5-b): unearthed from Sanpula

Grave 01, dated to the 1st through 2nd centuries A.D., or to the Eastern Han Dynasty of China.

xi. Fragment of a skirt with patch-woven pattern in gilim weave technique and lace-type shaded colour band on the dark-blue ground (Plate 5-c): the place and period from which it was derived are the same as those of Specimen v.

xii. Fragment of a tapestry, produced by gilim weave technique, with pattern of a horse-man and a warrior (Plate 6-a): from the place and period from which Specimen x derived.

The above gilim weaves can be clearly distinguished into two types as follows:

Type 1: Whole gilim weave (Specimens viii, ix and xii).

Type 2: Partial gilim weave (Specimens x and xi).

The Type 1 gilim weaves can be divided into two styles according to the ways of their use:

Style A: Woven lace such as Specimens viii and ix.

Style B: Woven tapestry such as Specimen xii.

The Style A specimens, *i.e.* two of the Type 1 specimens (whole gilim weaves), were originally inset on the hem-line of woman's skirt as decorated lace. The Type 2 specimens are parts of a cloth, which weave in one band of gilim-woven lace. Making skirt with this kind of woven cloth with its hem-line all around can produce the effect of band as lace pattern.

This kind of gilim weave belongs to the "woven" (織成). The name "woven" is frequently seen in Chinese ancient books, but there are different explanations. I think that this name generally refers to completed or semi-completed products of quilts, clothings and shoes, woven by machine or hand[5]. The difference between the "woven" and common weaves lies in the predetermined sizes and form designs. The completed products of the "woven" need not be cut out and processed again. The semi-completed ones need to be arranged according to designed forms and sizes. The "woven", completed or semi-completed, is counted by "segment" (段) or "piece" (件). The common weaves, on the other hand, are counted by "pi" (疋, bolt of cloth) or "duan" (端, standards based on fixed length and width), and can be cut out freely for use. In this sense, the pile weaves (Category I) and the gilim weaves (Category II) all belong to the "woven."

The fundamental weaves of the Type I specimens all belong to plain weaves of weft rib weaves, or they are called rib weaves of weft effects, showing the rib pattern vertically identical to the warp direction. The length of floating threads of weft is over two weave spots. The rib patterns on the face and back sides are produced with weft yarns; the reason for this is that the warp is sparse, the weft is fine and densely-woven, the warp is not winded, and the weft yarns are winded.

The gilim weave is coloured plain weave, and the design part accords with the pattern demanded, being made with coloured weft yarns using small shuttle inserted to weave one part after another. All of the pattern lines, whether same or not, are insert-weaves (挖織) one part after another, or leave a space for patch weaving (補織). In China, this kind of craft is called "successive warp and cutting weft" (通経断緯). Actually, the weft yarns make U-turns at the place of colour change. In the time of their manufacture, they could not be completed at one time in the same weft level because of the limited capacity of the tools of weft beating of this kind of weaves. And, the tool for the beat of weft did not have the function of beating weft on the whole[6]. Therefore, the weft yarn's weaving density is frequently uneven, or parts of the weft yarns of the pattern may not be parallel. The "cutting weft" of the gilim weaving method, namely the weft yarn, does not run through the whole width of fabric. And, there is a long and narrow slit between the adjacent vertical parts of two colour patterns. This is the main character of the gilim weaves. In the gilim weaves unearthed from Sanpula Grave 02 and earlier in period than Specimen xii, there are seen longer

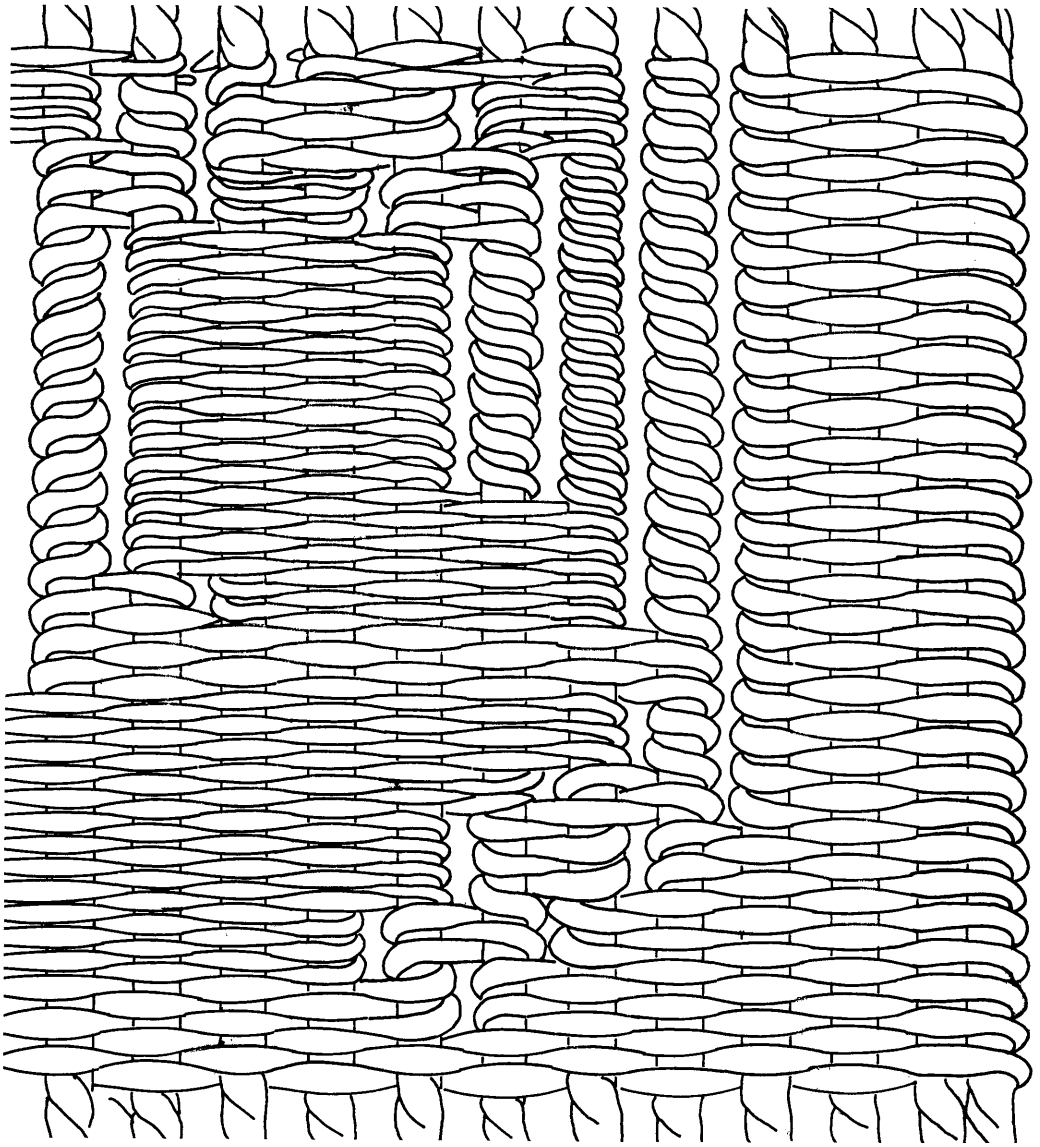

Fig. 4 Structure of Specimens viii and ix

vertical slits yet preserved (Fig. 4). With regards Specimen xii, the saw-toothed dove-tail join was used in order to avoid this kind of slit to extend infinitely (Plates 6-b and 6-c).

Specimen x of Type 2, of which fundamental structure on the ground is 1/2 weft-faced twill, is an elaborate wool cloth using fine yarns spun after dyeing. The skill level of the spinning was so high that this specimen was made very skillfully, beyond our imagination. Its wool yarn corresponds in thickness to 56-count yarn wool by the modern standard of machine spinning. The angle of the twill is under 18°. Some of the similar wool twill cloths unearthed together have weft's density reaching 130～140/cm, and are comparable in quality to Venetian (popularly named "lifuni" 礼服呢 in China) made with modern loom. The gilim lace-type band inlaid in the dark-red ground is about 9 cm wide, and runs all through the width of the cloth (Plate 3-a). The pattern's structure is also 1/2 weft face twill (Fig. 5). In the past, wool weaves with the same style were unearthed from the ancient site of Loulan[7].

Specimen xi is woven with middle-thick threads, and its inlaid lace-type band is 22 cm wide. The fundamental structures of the pattern and the ground are different; the pattern part is plain weave of weft rib weave, and the ground and the shaded colour band along the two sides of the patterned part, of which

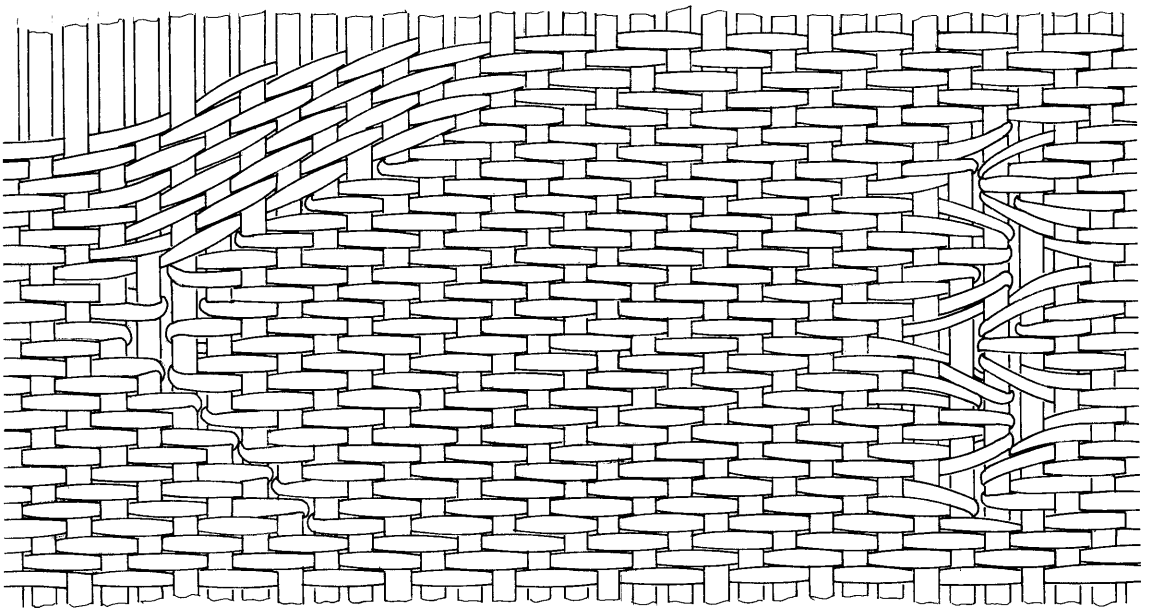

Fig. 5 Structure of Specimen x

the main part is 9 cm wide, are 1/2 weft face twill (Plate 5-c). There is thin nap on the face of weaves, and it seems, judging from the thickness of the nap, that the fulling treatment was exercised[8]. The similar wool weaves with nap were also discovered at the ancient graves at Sanpula.

The patterns of four specimens, except for Specimen xii, of Category II all belong to two-direction running patterns of animal and plant. Specimens viii and ix have animal patterns. Specimen viii has two groups of deer-like beasts in various postures with long tails, thin waists, claw-feet and double-fork antlers. I think this represents upright dragon figures (Plate 4-b). Specimen ix has two-direction running squares and antler-beast patterns: expressed along the two ends of every square are saw-toothed figures, and a head of the patternized antler-beast is in the middle, which is thought to be a dragon's head (Plate 5-a).

Type 2 weaves of Category II inlays lace, and the two sides of the main pattern band are all of shaded colour. Specimen x inlays a lace-type transverse band. It is woven with weft of more than ten kinds of colours, and the two sides of the transverse band have two-direction running grass scroll pattern, which is

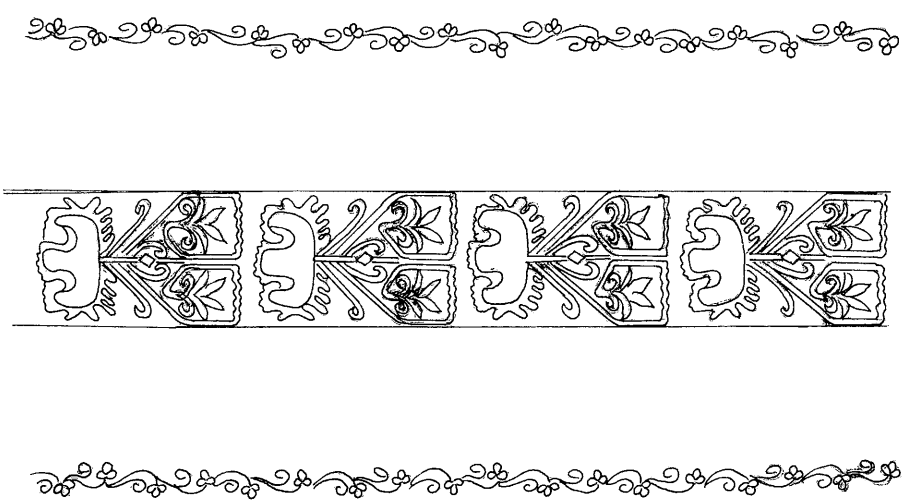

Fig. 6 Pattern of Specimen x

shaded in colour from the two sides to the middle axis. The main pattern band in the middle axis is 2.8 cm wide in dark-green colour of the ground at the pattern part showing with multi-colour two-direction running twin flowers on one stalk in the same direction (Fig. 6). Specimen xi is the same in pattern style as Specimen x, but the transverse band is wider. It also has the shaded colour expressed from the two sides to the middle. The main pattern band in the middle is 9 cm wide, and is decorated with hook-like figure (also called little torrent wave pattern) along the two sides. The main pattern also has two-direction running trailing grass patterns in the same direction, woven with more than ten kinds of colours.

These four specimens have the patterns and colours which are the same in character, namely the patterns circulating successively without variation. Every pattern's unit is mixed with many colours without duplication, which makes a rich colour effect for the pattern. This kind of skill for colour treatment is completely the same as that exercised in the silk embroidery from the period of War States (战国), which was unearthed from Grave No. 1 of Chu (楚) at Mashan (Horse Mountain) of Jianglin (江陵) in Hubei (湖北) Province, China[9].

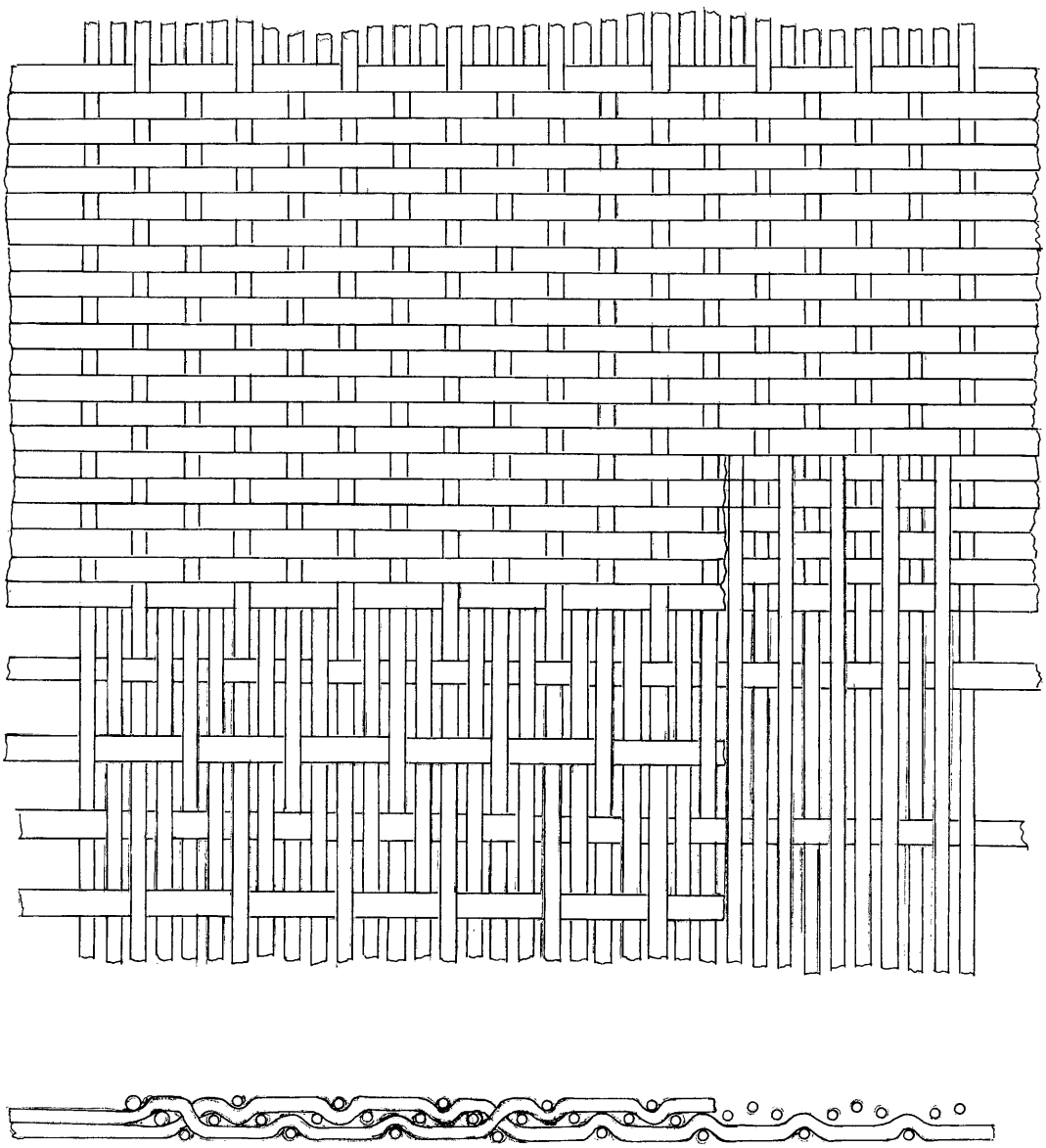

Fig. 7 Structure of Specimens xiii and xiv: its section shows alteration of face weft and back-weft

The category II weave of Style B, Type 1 has only one example: Specimen xii which is a tapestry fragment with pattern of a horse-man and a warrior. The personage figure is the main pattern of the tapestry: the horse-man in the upper part and the warrior with a spear in hand in the lower part. With regards the warrior, however, the left upper limb and left body as well as right wrist and body lower than abdomen are missing. On the whole, the main pattern of this tapestry is the warrior.

This tapestry had been cut into four segments when it was unearthed. They were sewed onto the fronts and backs of right and left trouser legs under knees as surface decoration. This tapestry has been published as two pieces of weave: horse-man weave (Plate 6-b) and warrior weave (Plate 6-c)[10]. After sorting out and restoring, we came to conclude that they originally belonged to one piece of weave (Plate 6-a). After reconstruction, this tapestry measured 230 cm long and 21～49.3 cm wide. It is worthy of note that the warrior's face as well as his naked neck and chest are expressed with colour-shading method, which bears a strong sense of stereoscopic effect, approaching the effect of oil painting.

In view of the pattern expressed, namely the figure of warrior or the subject of the horse-man, this tapestry obviously possesses the features of Greek culture.

Weaving way (insert weaving) of gilim is quite free, and therefore can be done either partially or in full width. This weaving way can produce narrow lace ribbon and wide tapestry. It also can produce multi-colour patterns which have the effect of embroidering and oil paintings, by which exceedingly rich decoration is realized. The gilim weave was the main pattern-weaving craft in ancient Western Region (西域) before the 7th century A.D. This weaving skill was adopted at that time by Chinese for silk weaving. The silk textile produced by this skill are called "Gisi" (緙絲) or "Kisi" (刻絲, 克絲).

III. Category III: Weft-backed and warp-wadded weaves

xiii. Gi (䜭) with four-petaled flower pattern, unearthed from the same place and dated to the same period as Specimen i.

xiv. Fragments of Gi with human, beast and grape patterns, unearthed from the site of Niya of Minfeng, Xinjiang, dating to about the 3rd to the 4th centuries A.D.

This kind of weaves which are also called weft-faced compound weaves show the pattern with weft yarns, of which the fundamental structure is plain weft-backed weave with duplex wefts (Fig. 7). This kind of weave structure has the same effect as the structure of the Chinese traditional silk warp brocade, which are also called warp-faced compound silk weaves, showing pattern with warp, namely duplex warp with wadding weft (or main weft), also called warp-backed and weft-wadded weaves. But for the original selvage of weaves, it would be very difficult to distinguish this kind of weaves showing pattern with warp or weft in their outward appearance. If such weft-backed and warp-wadded weaves are rotated 90°, there is no difference between them and the Chinese traditional warp brocades.

The wadding warp (main warp) of the weft-backed and warp-wadded weaves functions the same as the Chinese traditional wadding weft, which is only between face (or over) weft and back (or under) weft. This wadding warp, like the wadding weft between face (or over) warp and back (or under) warp, does not appear on the face or back of weaves, and has nothing to do with weaving point of weave's surface. The wadding warp and weft are only between the face and back of weft and warp, and do not interweave with other warp (binding warp) as well as weft yarns (binding weft). Their main function is to avoid mixing face warp or weft with multi-colour of back warp or weft, in order to make outward appearance of face warp and weft clear. The specimen xiii was originally used as bedclothing's face, consisting of two fragments with different patterns and colours. The fragment a is bigger, with original selvage preserved. The selvage as is woven consists of winding weft with neither additional selvage-warp yarn nor width-selvage structure

generally seen. It is 34 to 37 cm wide with paired wefts. This Specimen xiii-a is woven into trellis design with red and white yarn on the blue ground, filled with white four-petaled flowerets and annular patterns in it. Specimen xiii-b is woven into red ground and the ground in indigo blue in different parts, with white and red successive rhombus ribbon-like lace, as well as successive four-petaled flowers spread in four directions all over the blue and red regions of the ground (Plate 7-a).

Specimen xiv is fragmentary, and is woven with backed-weft and wadding warp of two colours. Its pattern shows yellow design on the dark-green ground, the colours on the back being the opposite. The pattern consists of human figures, animal figures such as lion and deer, and bunches of grape with grape vine, branches and leaves. The head of the human figure bears short, curly hair, which is characteristic of European races (Plate 7-b).

The fine or patterned wool weave is called Gi (罽) in Chinese ancient documents. The aforementioned weaves, except for pile wool weaves of Category I, all belong to the Gi. The gilim weave of Category II is ZhuiGi (氈罽), and the patterned wool weave of Category III is HuaGi (華 (flower) 罽).

Deduction on the Production Places of the Weaves

The weaves mentioned above are of a high-grade wool production, manufactured at different times and differing in category. The pile weaves of Category I have three methods of knotting, showing that they were not made in one place. Where did these wool weaves come from? Although we can not be very affirmative now about their original place, we can discuss it on the basis of the relevant records in some documents, weaving skill, and the characters of the pattern styles.

1. Records in ancient Chinese books regarding wool weave production in Western Region (西域)

The following ancient Chinese books, relevant in time to the wool weaves reported in the present paper, recorded the places of wool weave production in the Western Region.

(1) Han Shu·Biography of Western Region (≪漢書・西域傳≫) clearly says that Gibin (罽賓, Kasmira) "weave Gi and embroidery." It is not clear about other countries, but we can recognize the expressions "same each other" as follows: In Wuyishanli (烏弋山離, Alexandria, Herat of Afghanistan now), its livestock productions, five cereals ---- money ---- are all the same as Gibin." In Anxi (安息, Parthia, ancient Persia), "productions as well as all folk-ways are the same as Wuyishanli and Gibin." In Darouzhi (大月氏, Indoscythe of upper reaches of Amu-Draya (阿姆河) having occupied ancient Bactria and having got into upper reaches of Indus River (印度河) when it was strong), "productions, all folk-ways and money are the same as Anxi."

(2) Hou Han Shu·Biography of Western Region (≪後漢書・西域傳≫) says that Daqin (大秦, Roman Empire) "prick embroidery with golden thread, weave Gi with golden thread and motley ling (綾)", "and have fine cloth, also called 'water-sheep-fine down' (水羊毳)" (similar record being in Jin Shu·Biography of Western Nation ≪晋書・西戎傳≫). Hou Han Shu also recorded that Tianzhu (天竺, India) "passes to Daqin in the west, and has Roman jewelry and fine cloth as well as good woolen weaves (Tadeng: 氎氈)."

(3) Wei Lue·Biography of Western Nation (≪魏略・西戎傳≫) records that Daqin has many items of weave, and the wool weaves "include woven Qushu (氍毹), Tadeng and Gi tent, which are all good." The wool weaves have different colours such as "ten kinds of Qushu, five colours of Tadeng", or the like.

(4) San Fu Huang Tu (≪三輔黄図≫) records that Weiyang Palace of Chang-an in Han Dynasty (漢代長安未央宮) "paved the floor with Gibin's Qushu."

(5) Ban Gu (班固), the writer of Han Shu, wrote to his young brother, Ban Chao (班超, 32～102 A.D., who garrisoned Western Region more than thirty years, and held the post of the Western Region Duhu (西

域都護) in 91 to 102 A.D.), and asked him to order acting Shizhong (侍中) Dou Xian (竇憲) to buy "Rouzhi horse (月氏馬), Suhe fragrant (蘇合香), Tadeng", saying that "In Rouzhi's Tadeng, big and small ones are mixed together, but all of them are fine and excellent"[11].

From these Chinese records, we know that the items of wool weaves transported into China at that time included Gi, Tadeng, Qushu, of which production places were Gibin, Rouzhi, Daqin, Anxi in the west of Conglin (葱嶺, Pamirs). In the 1st century B.C., Kushān (貴霜) Dynasty united Darouzhi. Ruled by Kanishka (迦膩色迦) and his successor from the 1st century A.D. onward, the power of Darouzhi gradually became greater and more prosperous, and expanded to Khorezm (花剌子模) in the north and Vindhya Range (温迪亜山) in the south, annexing Gibin and other neighbouring countries. Darouzhi thus became one of the four strong countries in the world at that time: with China, Roma and Anxi. The information about the Western Region in Han Shu, provided by Ban Chao, should be clear. Ban Gu's record in Han Shu (Biography of Western Region) concerned the former Han period (from the 2nd century to the 1st century B.C.). When he asked Ban Chao to buy "Rouzhi Tadeng" in the 1st century A.D., the situation of the Western Region was changed as described above; Kushān Darouzhi occupied Gibin and northern and western Tianzhu (天竺).

The period when the wool weaves reported in the present paper, except Specimens viii and ix, were made was the 1st century to the beginning of the 5th century A.D., corresponding to the period of Darouzhi Kushān Dynasty. Even if these wool weaves were not produced in Darouzhi, they should have been transported from there.

Judging from the items of weaves, we think that Gi is fine or jacquard wool weave in the above section. The imperial edict (高帝令: 八年三月詔 (公元前199年: March, 199 B.C.) in Han Shu·Gao Di Ji (≪漢書·高帝紀≫) said that "the traders can not wear brocade, embroidery, Hu (縠), Xi (絺), Zhu (紵) as well as Gi." In the ancient times, China attached importance to agriculture and despised trade, belittling the trader's social position and prohibiting them from wearing high quality clothings. Gi, juxtaposed with high quality weaves of brocade and embroidery, naturally belonged to high quality wool weaves.

The original meaning of Gi was fishnet according to Xü Shen's Shuo Wen (許慎≪説文≫), which has nothing to do with wool weaves in its word form or meaning. Hereafter, people made a word Gi (罽) to call wool weaves, meaning "fine down cloth of Western Hu-men (西胡)", namely Western nation (Humen) making wool weaves. But the ancient people had not strict standard in word usage, and wrote this word "罽" for convenient writing. The word "Gi", called as pile weaves of Western nation, obviously was the transliteration of the foreign language. There are many words with same pronunciation in Chinese. Why was Gi used in that time? It is natural for us to think of a foreign country's transliteration of Gibin (罽賓), the place that was famous for weaving Gi at that time. It is probable that this kind of wool weave production had come from Gibin in the earlier time and became to be called "Gi."

Gibin, Kashmir now, is famous for producing fine pile of goat and its weaves, which are called "cashmere."

Apart from Gibin, Anatolia is the original place of gilim, where this kind of weaves has been produced until now[12]. In the ancient times, Göreme, in the north of Taurus Mountains and southern bank of Kizilirmak River, was the distributing center, so it is thought that this place name was the origin of gilim in Persian language. The gilim could be omitted to be transliterated into Gi; we call it ZhuiGi (甀罽) for its special weaving skill. At that time, Anatolia was ruled by Roman Empire (Daqin). Daqin's weaves, recorded in Hou Han Shu·Biography of Western Region, included "the Gi woven with golden thread."

It is noteworthy that there are some weave names in Kharosthi documents (佉卢文書) used in Shanshan, Niya, Khotan in the 3rd and 4th centuries A.D. Document No. 318 recorded "two blue Kigi,

one Kremeru"[13]. I think that they probably were the transliteration of foreign language, the former corresponding to Chinese "Gi", and the latter probably being the transliteration of Persian gilim.

Tadeng (毾㲪) and Qüshu (氍毹) or Qüsou (氍毵) were considered as wool mat or wool-padded mattress by ancient people. Some people think Tadeng to be pile carpet. Sir ZHANG Xinglang (張星烺), for example, thinks that Tadeng is the transliteration of Tafutan in Persian language, meaning spinning and weaving. He explains "Tan" (檀) of Persian products in Sui Shu·Biography of Western Region (≪隨書·西域傳≫) as "tanva" of ancient Persian language, and "tanand" of medieval Persian language means spinning and weaving. He also says that "tan-bisa (檀必撒) is small carpet"[14]. The reason why Tadeng and Tan co-existed in Sui Shu is that the author did not know that these two kinds of different translation had come from the word "tanand" of medieval Persian language. Therefore, Tadeng or Tan in fact means weaves in a general sense. From the documents unearthed from Turfan (吐鲁番), we have known that the word Tan (毯) appeared in ancient Gaochan (高昌) in the 4th century A.D., and that the blanket (毯) (thick wool weave) was used as a means of trade. Tadeng or Tan means wool weaves in a general sense as well as the weaves for bedclothing (including paving (鋪地)), all of which are called "Tan" (毯) in Chinese. As its usage can not mirror its craft and texture, it is not possible to affirm Tadeng and Tan to be pile weaves, even if they were used for bedclothing or paving. For example, carpet means rug in a general sense in English, but the carpet with cut pile yarns (栽絨毯) is called pile carpet, and the hanging carpet (掛毯) is called gilim tapestry. I think there was not any record of pile weaves of Category I in ancient Chinese books before the 6th century A.D. In Tan Dynasty, vivid names appeared of "大毛繡舞筵" and "長毛繡舞筵"[15].

In the Kharosthi documents unearthed from Xinjiang, there are also seen weaves named Kośava or Kojava, meaning thick wool rug (粗毛毯), also translated to "thick carpet" by someone. Sir MA Yong (馬雍) thought that it corresponded to Chinese "Qüsou" (氍毵), which may have something to do with ancient Qüsou country (粟搜, Farghana now)[16]. If his view is reliable, this kind of thick wool weaves (including carpet type) may have been named as they were transported into the Western Region from Qüsou country at the earliest.

There is also "Khotan Kojava" in the Kharosthi documents, but this kind of Khotan thick woolen blanket was not necessarily a pile rug. "Tavastaǵa" in Kharosthi was translated to "rug" by someone. I think it was probably the transliteration of Persian taftan, but it may not necessarily mean pile rug.

In view of these, all of the Chinese names of the above-mentioned woolen weaves are transliteration of foreign languages, reflecting their original places of production in Central Asia and Western Asia in the west of Pamirs.

2. Deduction on the weaves' production places on the basis of the weaving crafts and pattern features

The weaves of Category I have three different kinds of knot. Among them, U-shape knot of Style C is not clear about its origin until now. The Ghiordes knot originated from Gördes in the west of the Anatolian peninsula, and so was named after it. The Senna knot was named because it had originated from Sanandaj, the provincial capital of Kurdistan in the north-west of Iran. Concerning the pile carpets corresponding to the afore-mentioned specimens unearthed, their main products should have come from Anatolia and Persia. I think, therefore, that if these specimens did not come from Anatolia and Persia, then they should have come from one of other regions in Central Asia and West Asia influenced by the Anatolian or Persian crafts.

The subjects and styles of patterns and motifs of these pile weaves have such characteristic features as are commonly seen among the Western and the Central Asian decorated patterns. The patternized animal (lion) of Specimen i makes us remind of the decorated relief picture stuck on the glazed bricks of the New

Babylonian era (6th century B.C.). The dragon pattern in Specimen viii has the style similar to the "Babylonian dragon" in the relief on the bricks, which was stuck on the Ishtar Gate built for the Goddess Ishtar. If such similarity can only be thought as inheritance and development of art style, then the subjects and expression in Specimen xii are horse-man and warrior figures, obviously of the Greek style.

In 334 B.C., Alexander the Great went on an expedition to the east, and Grecized the world expanding to the Central Asia and India, spreading the Greek culture and art to the east gradually. Although this empire collapsed quickly, it had a profound influence on the economical and cultural exchange between the east and the west. Gandhāra art under the Kushān Dynasty dominantly assimilated a lot of patterns and artistry of the Greco-Roman style, such as grape curly grass pattern, Centaur (horse-man), and so on[17].

It is supposed, on the basis of the names of weaves or weaving skill as well as the styles of their patterns, that the above-mentioned wool weaves came differently from Darouzhi, Anxi and Daqin at that time.

It is not surprising that the above-mentioned places of the wool weaves unearthed in Xinjiang had the commodity from the Central and the Western Asia, for these places were passed by the ancient "Silk Road."

Interflow of weaving technologies between the east and the west viewed from wool weaves unearthed

The ancient "Silk Road", starting from China and reaching the Mediterranean Sea, promoted not only the trade of commodities and products between China and the west, but also the exchange of cultures and technologies between them. The afore-mentioned wool weaves also reflect the mutual complement of technologies in weaving crafts among China, the Central Asia, and the Western Asia.

Chinese silk weaves, made of raised silk, and the Western and the Central Asian wool weaves, made of wool, respectively have been using traditional weaving skills with different fibre raw materials and weaving tools. In the course of the progress of their skills, along with the exchange of commodities between China and the west, the wool weaves of the Western and the Central Asia were introduced into China as the Chinese silk weaves went into the west. It was natural for the common people using the weaves to have no feelings other than curiosity when they received these new foreign weaves. The weavers and weave managers of China and the west, however, were easily enlightened by the new craft and technology in the newly introduced weaves; they absorbed advantages from each other, improved and developed their own weaving craft, and enriched the variety of spinning- and weaving-crafts, pattern designing and colour. Thus, the new weaves were far more significant than the things merely considered as exchanging commodities.

The structure of the afore-mentioned weft-backed and warp-wadding plain weave, specimen of Category III, has completely the same face effect as that of the Chinese traditional warp-backed and weft-wadding plain weaves (warp-faced compound tabby). This was obviously influenced by the Chinese warp-backed and weft-wadding plain brocade. This structure resulted from the alteration of weft thread for warp silk yarn of Chinese warp brocade, of weft silk yarn for warp thread, and of wadding weft for wadding warp.

As the raw materials for spin-weaving of Central and Western Asia were drawn from wool fibre, and those of Southern Asia were from cotton fibre, both of which belong to short fibre, they should have been used for weaving after spin-twisting. This was the main factor for weft face effect of the weaves.

Spin-twisted warp yarn easily becomes twist-shrunk and tangled, and warp thread should have been arranged sparsely or used as ply yarn in the technological level at that time. Through this kind of

arrangement, the density of the weft became certainly greater than the warp density in different degrees, which formed weave's weft effect. The warp effect of the Chinese traditional weaves and the weft effect of the western traditional weaves have developed independently from each other, using materials of long and short fibres respectively. This never means which tradition was finer or more advanced. Up to now, some scholars have too much exaggerated the influence of the western weaving technology into China. The emphasis of the influence of the western weaving technology of weft face effect on to the Chinese weaving technology in the 7th century A.D. is unsuitable and out of reality. The archaeological materials unearthed in recent years show that this kind of western influence reached the inner parts of China around the 8th century A.D. A lot of 2/1 warp face twill brocade of warp-backed and weft-wadding weaves in the 7th to 8th centuries A.D. have been unearthed from Turfan, which confirmed that the weaves with weft face effect did not replace the Chinese traditional weaves with warp face effect[18]. Specimens xiii and xiv have proved that among the wool weaves of Central and Western Asia, dated to the 3rd to 4th centuries A.D., some already adopted and introduced the Chinese craft and technology of warp-backed and weft-wadding weave within their traditional weaving technology of weft face effect; while keeping their traditional weft face effect, they skilfully introduced the technology of warp-backed and weft-wadding weaves of China and wove the weft-backed and warp-wadding weaves. In view of this, it is evident that the interflow of spin-weaving technology and its commodities was mutual between China and the west.

The gilim technology of specimens of Category II is the traditional pattern craft of Western Asia, which has a unique style. As mentioned previously, it was not later than the end of the 7th century A.D. that this kind of pattern craft was first introduced into Chinese silk weave[19]. This technology was used to weave narrow lace strip in the beginning. Afterwards, it was developed to make dress materials and even to make miniature works of enjoyable art, using original versions by notables' paintings and calligraphies. This pattern craft is called "Gisi" (or Gesi, 緙絲) or "Kisi" (or Kesi, 刻絲) in China, and was written as "克絲" or "剋絲" in ancient Chinese books. These four Chinese words of "刻, 緙, 克, 剋" have the same pronunciation with different shapes, representing the same type of weaves, which means that these words were derived from the transliteration of a single foreign word. I think that the original forms of these four words were omitted transliteration of gilim. These words did not originate from the craft of this weave. In Japanese, this kind of craft is called "綴織" (tsuzureori), which is a suitable name expressing the characters of this craft. This is the reason why I rightly called this kind of wool weaves "毾㲪" or "毾㲪".

We have more specimens, other than those mentioned in the present paper, which prove technological exchanges between ancient China and the west. I have not discussed them this time, however, for they do not fall into the field of research presented here in this paper.

Conclusions

On the basis of the discussion above, we come down to several conclusions as follows:

1. The fourteen specimens of wool weaves of three categories discussed in the text had not been produced in the place excavated, although they were unearthed within the boundary of Xinjiang. The places of their production were in the Central Asia and the Western Asia in the west from Xinjiang.

2. These wool weaves were imported into Xinjiang as commodities along the ancient "Silk Road." From China to the west, on the other hand, silk weaves were exported.

3. The exchange of wool and silk weaves between China and the west not only enriched people's material and cultural life of the two worlds, but also offered to them opportunities to exchange and to replenish their weaving crafts between them. It not only promoted the development and progress of

science and technology between China and the west, but also made an important contribution to human civilization as well.

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List of the data of some ancient wool fabrics unearthed from Xinjiang

Specimen i: Pile carpet (unearthed from Yingpan)
Prime registered No.: 89BYYM1: 12
Size (cm): 260×95～100
Structure: Ground: Plain weave
Pile knot: Ghiordes
Design: With successive rhomb pattern all around and the figure of animal-like lion in central ground
Thickness (mm): Ground: 4.0 10.0～15.0 (with pile)
Raw material: Sheep's wool
Color: Warp: brown, white Weft: natural white
Pile: white, black, red, brown, blue, deep yellow
Diameter (mm): Warp: 2.0 Weft: 2.0 Pile: 1.5 (×2)
Twist, Twist No. (/cm): Warp Z/Z—S (3.0) Weft—Z (2.0～3.0)
Pile—Z (1.5～2.0)
Density (/cm): Ground part: Warp: 5 Weft: 5
Pile knot: 2.5×1 rows

Specimen ii: Horse saddle pile rug
Prime registered No.: 84HLSSK2: 1
Size (cm): 76×74
Structure: Ground: Plain weave
Pile knot: Ghiordes
Design: With successive leafage pattern periphery and interior rhomb-net pattern in central ground filled with leafage pattern
Thickness (mm): Ground: 4.5 15.0～20.0 (with pile)
Raw material: Sheep's wool
Color: Warp: brown Weft: brown, greyish
Pile: light red, tangerine, yellowish, deep blue, light blue, dark green, white, black, tabacco color
Diameter (mm): Warp: 1.5 Weft: 1.5 (×2) Pile: 1.5 (×2)
Twist, Twist No. (/cm): Warp Z/Z—S (3～4) Weft—Z (3～4)
Pile—Z (2～3)
Density (/cm): Ground part: 4.7×6 Pile knot: 2.3×1.5 rows

Specimen iii: Fragment of rhombus pattern carpet
Prime registered No.: 59MNM1: 52 (a)
Size (cm): 30×21
Structure: Ground: Plain weave

Pile knot: Ghiordes
Design: Rhombus pattern
Thickness (mm): Ground: 4.0 8.0～10.0 (with pile)
Raw material: Sheep's wool
Color: Warp: brown, greyish Weft: brown, greyish
Pile: light red, orange, light blue, red, white, yellow, brown, the color of camel's hair
Diameter (mm): Warp: 1.5～2.0 Weft: 2.0～2.5 Pile: 1.3～1.5 (×2)
Twist, Twis No. (/cm): Warp Z / Z > S (3～4) Weft—Z (2～3)
Pile—Z (1.5～2)
Density (/cm): Warp: 4 Weft: 4 Pile: 2×1 rows

Specimen iv: Fragment of pile carpet
Prime registered No.: 59MNM: 52 (b)
Size (cm): 37×12
Structure: Ground: Plain weave
Pile knot: Ghiordes
Design: Rhombus pattern
Thickness (mm): Ground: 4.0 10.0～15.0 (with pile)
Raw material: Sheep's wool
Color: Warp: brown Weft: natural color
Pile: white, brown, blue, yellow, red, etc.
Diameter (mm): Warp: 1.8～2.0 Weft: 1.2×2 Pile: 1.2×2
Twist, Twist No. (/cm): Warp Z / Z > S (3) Weft—Z (2)
Pile—Z (1.5～2)
Density (/cm): Warp: 5 Weft: 5 Pile knot: 2.5×1 rows

Specimen v: Fragment of pile carpet
Prime registered No.: 80LBMB2: 92
Size (cm): 35×17
Structure: Ground: Plain weave
Pile: knot Ghiordes
Design: Geometric pattern
Thickness (mm): Ground: 3.0 3.5～5.0 (with pile)
Raw material: Sheep's wool
Color: Warp / Weft > natural color
Pile: red, brown, light blue, white, etc.
Diameter (mm): Warp: 1.3～1.5 Weft: 1.3～1.5 Pile: 1.3 (×2)
Twist, Twist No. (/cm): Warp Z / Z > S (4) Weft—Z (3～4)
Pile—Z (1.5～2)
Density (/cm): Warp: 6～7 Weft: 9 Pile knot: 3～3.5×1 rows

Specimen vi: Fragment of pile carpet
Prime registered No.: 59BTB庙 (temple) 3: 41
Size (cm): 18×13
Structure: Ground: Plain weave
Pile knot: Senna
Design: Geometric pattern
Thickness (mm): Ground: 4 8 (with pile)
Raw material: Sheep's wool
Color: Warp / Weft > brown, natural white
Pile: red, brown, white, greenish, the color of camel's hair

Diameter (mm): Warp: 2～3 Weft: 1.2×3 Pile: 1.5×1.8×2

Twist, Twist No. (/cm): Warp Z/Z—S (3) Weft—Z (2)

Pile—Z (1.5～2)

Density (/cm): Warp: 4 Weft: 2 Pile knot: 2×2 rows

Specimen vii: Fragment of double-face pile knot woolen fabric

Prime registered No.: 80LBMB2: 93

Size (cm): 18×9

Structure: Ground: Plain weave

Pile knot: Reversible "U"-shape

Design: Flower filled-in-checked

Thickness (mm): Ground: 3 12～15 (with pile)

Raw material: Cashmere

Color: Warp, Weft: white

Pile knot: deep blue, light blue, deep red, light red, yellow, greenish, dark green, light brown, etc.

Diameter (mm): Warp: 1.1 Weft: 1.1×6 Pile knot: 1.5×2

Twist, Twist No. (/cm): Warp Z/Z—S (4～5)

Weft Z/Z—S (4～5)

Pile knot—Z (3～4)

Density (/cm): Ground: 7×3 Pile knot: 3.5×2+3.5×2 rows

Specimen viii: Lace woven with dragonish pattern on blue green ground

Prime registered No.: 84HLSSM02: 3017

Size (cm): 57×14

Structure: Rib weaves with weft effects

Design: Variopostures, beastish dragons pattern

Thickness (mm): 1.2

Raw material: Cashmere

Color: Warp: white

Weft: blue green, red, white, yellow, brown, the color of camel's hair, orange, tea-green (the section part of green, red, white, orange), etc.

Diameter (mm): Warp: 1.0 Weft: 0.3～0.5

Twist, Twist No. (/cm): Warp Z/Z—S (5～6) Weft—Z (4～5)

Density (/cm): 7×44

Specimen ix: Lace woven with animal pattern in successive square

Prime registered No.: 84HLSSM02: 3102

Size (cm): 207×8

Structure: Rib weaves of weft effects, with pattern shown by weaveing patch

Design: Weaved horned beast's head on successive square ground

Thickness (mm): 1.2

Raw material: Cashmere

Color: Red, white, yellow, brown, tea-green, light green, the color of camel's hair

Diameter (mm): Warp: 0.8～1.0 Weft: 0.25～0.5

Twist, Twist No. (/cm): Warp Z/Z—S (5~6) Weft—Z (3~4)

Density (/cm) 8×44

Specimen x: Fragment of weaved skirt with patch-woven pattern twin flowers and trailing grass of lace-type on dark red ground

Prime registered No.: 84HLSSM01: 3901

Size (cm): 37×45

Structure: Ground fundmental structure is 1/2 weft effects twill, using shown figures on inlaid weaved lace part.

Design: Two running directions of trailing grass and twin flowers with lace type

Thickness (mm): 0.5~0.7

Raw material: Cashmere

Color: Deep red, green, dark green, deep blue, light blue, deep brown, light brown, orange, light yellow, black, white

Diameter (mm): Warp: 0.3 Weft: 0.15~0.2 (=56 count yarn)

Twist, Twist No. (/cm): Warp—Z (5~6) Weft—Z (4~5)

Density (/cm): Ground warp: 17~18 weft: 99~105

Figure warp: 17~18 weft: 50~70

Specimen xi: Fragment of weaved skirt with patch-woven pattern lace-type shaded color on the dark blue ground

Prime registered No.: 80LBMB2: 89

Size (cm): 59×52

Structure: Ground fundmental structure is 1/2 weft face twill rib weaves of weft effects with gilim pattern

Design: The frame made by two running directions and symmetrical wave-curve lines, with trailing grass and three-petals flowers spread on its inside and outside

Thickness (mm): 1.0

Raw material: Sheep's wool

Color: Deep blue, white, red, yellow, green, light blue, red blue or grape, light red, tangerine, brown

Diameter (mm): Warp: 0.7 Weft: 0.4

Twist, Twist No. (/cm): Warp Z/Z—S (5~6) Weft—Z (4~5)

Desity (/cm): Warp: 11~12 Weft: 40~45

Specimen xii: Fragment of gilim tapestry with pattern of horse-man and warrior

Prime registered No.: 84HLSSM0/: 3101~3104

Size (cm): 231×21~49.3

Structure: Rib weaves of weft effects

Design: Main pattern made by a warrior with a spear in his hand and horse-man (or Centaur)

Thickness (mm): 1.5

Raw material: Sheep's wool

Color: Warp: white

Weft: blue, red, light red, fade-red (reddish), black, white, brown, yellow, etc.

Diameter (mm): Warp: 0.8~1.0 Weft: 0.5~0.7

Twist, Twist No. (/cm): Warp Z/Z—S (4~6) Weft—Z (3~4)

Density (/cm): Warp: 6~8 Weft: 32~40

Specimen xiii: Gi (劂) with four-petals flower pattern

Prime registered No.: 89yyM7: 9

Size (cm): 50×48

Structure: Weft backed and warp wadded plain weave

Design: Four-petals flowers in trellis design

Thickness (mm): 1.5

Raw material: Sheep's wool

Color: Blue, white, red, yellow, deep red

Diameter (mm): Warp: 0.5 Weft: 0.5×2

Twist, Twist No. (/cm):	Warp Z > S (3～4) Z Weft—Z (3～4)
Density (/cm):	Warp: 5～6×2 (interweaved warp+wadded warp) Weft: 11×2 (face weft+base weft)

Specimen xiv:	Fragment of Gi (劂) with human beast and grape patterns
Prime registered No.:	59MN10—16
Size (cm):	6～21 (length) 1.6～4.6 (width) (by rent in several narrow pieces)
Structure:	Weft backed and warp wadded plain weave
Design:	Part of curly-pate man, branches, foliages, fruits of grape, and beast (lion?) pattern remained.
Thickness (mm):	1.0
Raw material:	Sheep's wool
Color:	Dark green, yellow
Diameter (mm):	Warp: 0.2 Weft: 0.15×2
Twist, Twist No. (/cm):	Warp—Z (4～5) Weft—Z (4～5)
Density (/cm):	Warp: 10×2 (interweaved warp+wadded warp) Weft: 32×2 (face weft+base weft)

Notes

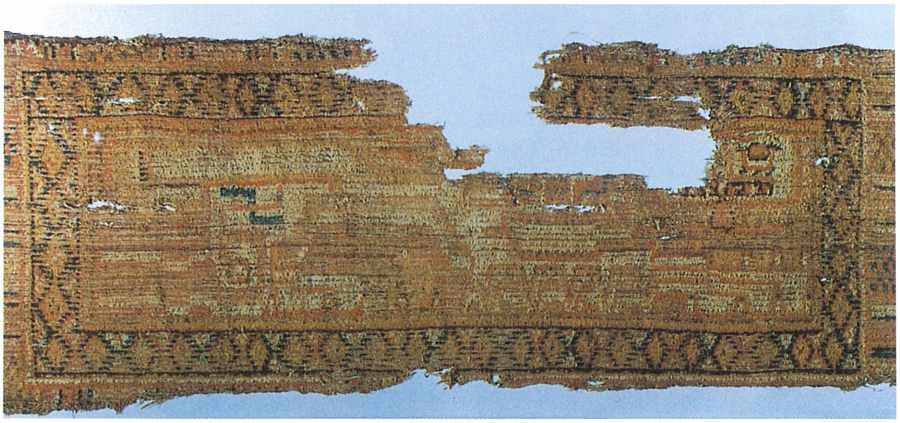
1) 武敏 1992 (August):『織繡』, 幼獅文化事業有限公司, 台北, pp. 36–41, pp. 78–92.
2) This grave, No. LCiii, was excavated by A. Stein. When it was excavated again in 1980, there were a lot of weaves discovered, including weaving brocade of the Eastern Han Dynasty (around the 2nd century A.D.) The situation of the grave shows that these weaves were not buried with the grave's master in one place at the same time. It is probable that Stein collected them from different places of ancient graves at Loulan site, and buried them in this place after recording. The era of these weaves is from the Eastern Han to Jin (晋) Dynasty (from the 2nd century to the 4th century A.D.) We temporarily dated these wool weaves from this grave in this text to the 3rd to 4th centuries A.D. See also: 樓蘭城郊古墓群發掘簡報,『文物』, 1988 (7期). The wool and silk weaves found by Stein can be seen in A. Stein: *Innermost Asia: Volume IV* (Plates xxxi and Colour Plates xxxiv and xxxv), Cosmo Publications, New Delhi, India, 1981.
3) Although the cultural layer of this site is disturbed, it is dated to the Southern and Northern Dynasty to the Song Dynasty (the 5th to 10th centuries A.D.) Following the excavator's view, we date it to the Southern and Northern Dynasty (the 5th century A.D.)
4) 李遇春・賈応逸 1980: 新疆脱庫孜沙来遺址出土毛織品初歩研究,『中国考古学会第一次年会論文集』, 文物出版社, 北京, p. 423 (Fig. 2); 賈応逸・張亨德 1984:『新疆地毯史略』, 軽工業出版社, 北京, pp. 27–28.
5) 武敏 1992 (August):『織繡』, 幼獅文化事業有限公司, 台北, pp. 98–99.
6) This kind of beating-up tool, made from wood, is called "wooden hand" in Chinese custom. Its form and ways of use can be seen in Ziemba, Akatay and Scbwartz: *Turkish Flat Weaves*, Scorpion Publications Ltd., London, 1979, p. 89 (Plate 42).
7) See the colour plate in A. Stein: *Innermost Asia: Volume IV*, Cosmo Publications, New Delhi, India, 1981.
8) Fulling is one technology to treat wool weaves. It takes advantage of characteristic physical property of the wool fibre, that is kneading in water, gradually increased and made warmer, making the face scale of fibre inlaid each other, and feltizing it with nap. If wool weaves are washed in lukewarm water to be cleaned and are kneaded by hand, they also can show the phenomenon of fulling in the course of their use.
9) See also 湖北省荆州地区博物館 1985:『江陵馬山一號楚墓』, 文物出版社, 北京, Color plates xxi' to xxviii'.
10) 新疆維吾尔自治区博物館 1989 (2期): 洛浦具山普拉古墓發掘報告,『新疆文物』, p. 32 (Plate. 3).
11)『全漢文』Vol. 25.
12) Ziemba, Akatay and Scbwartz 1979: *Turkish Flat Weaves,* Scorpion Publications Ltd., London.
13) 韓翔 他 1988:『尼雅孝古資料』, 烏魯木肯, p. 217.
14) 張星烺 1978:『中西交通史料匯編』Vol. 3, 中华書局, 北京, pp. 92 and 103, Notes 6 and 10.
15) According to『冊府元亀』Vol. 971, the words "Huomao" (火毛, fire wool) was mistakenly written for "Damao" (大毛, large wool) in『旧唐書・西域傳・波斯』and『唐書・西域傳・波斯』. The original meaning of Yan (筵) is the bamboo weave, called "Yanxi" (筵席), to pave floor with the mat on it. Wool embroidery has the pile effect. The dancing Yan (舞筵) is used for dancing on it. This name was created by people of the Tan Dynasty in order to functionally express pile carpet.
16) See 馬雍:『新疆佉卢文書中 kośava 即氍毹考』. See also 馬雍 1990:『西域史地文物丛考』, 文物出版社, 北京, pp. 112–115.
17)『簡明不列顛百科全書』Vol. 4, 中国大百科全書出版社, 北京・上海, 1986, p. 309.
18) In the weaving brocades of the 7th to 8th centuries A.D. unearthed from Turfan, the most principal aspects are the brocade of

warp effects. After the 8th century A.D., twill weft effect's brocade appeared little more eminent. I have researched so far to contrast the listed (or selvaged) twill warp effect's brocade with the listed twill weft effect's brocade, and have discovered that there appears a subtle difference on conscientious observation after removing the list. It is a pity that some scholars have so much prejudice that they call all the twill weaving brocades (斜紋織錦) weft brocades (緯錦). This kind of erroneous views remain the same still now.

19) It is said in China that this kind of craft is used for silk weaving. According to『後漢書・西南夷傳: Biography of South-West Nations』, Ailao (哀牢) people "realized dyeing, embroidery and GiZhui (剿紲)", which shows that Ailao people living in the present Yunnan (雲南) Province in the 1st to 2nd centuries A.D. possessed the skill of gilim weaving. It is a pity that this kind of craft has not been handed down in local region. The gilim craft of the Ailao people at that time may have been introduced from Western Asia by way of India.

Additional remarks by Hideo FUJII and Kazuko SAKAMOTO

In order to commemorate the 20th anniversary of normalization of the diplomatic relation between China and Japan, an exhibition under the title *The Exhibition of the Beauty of Lou Lan* was held at the National Science Museum, Tokyo (September–November 1992), Fukuoka Prefectural Museum of Art (December 1992–February 1993), and Kyoto Municipal Museum of Art (March–April 1993). Displayed in these exhibitions was the mummy, famous as *the Beauty of Lou Lan* some 4,000 years old, which had been excavated at the ancient Lopnor in 1980, as well as a large number of other invaluable cultural heritages which had been uncovered at the old Loulan castle and its neighborhood. Among the textile exhibits coming from Xinjiang Uygur Autonomous Region Museum, Xinjiang Institute of Archaeology and Historical Relics, and Cultural Relics Protection and Management Office of Bayinguoleng Mongol Autonomous Prefecture (巴州文物保護管理所), we took notice of the specimens having the weave structure and design composition comparable to those of the textile specimens discovered at the At-Tar Caves, Iraq. That is why we felt the necessity to gain further information related to the specimens from Xinjiang. In this way, it was through the courtesy of the Asahi Shimbun and the National Science Museum, Tokyo that in reply to our request Professor WU Min of Xinjiang Uygur Autonomous Region Museum kindly presented to us the data and article on 14 specimens, including what we had wanted, which have been just published here in *Al-Rāfidān*. The introduction of the textiles from Xinjiang Region and their study will be very important for us textile researchers who are seeking the subject of cultural contact of the heritages in Western Asia and Eastern Asia. Taking the opportunity of these specimens to be published, we sincerely wish that this research field will make more progress through international joint works.

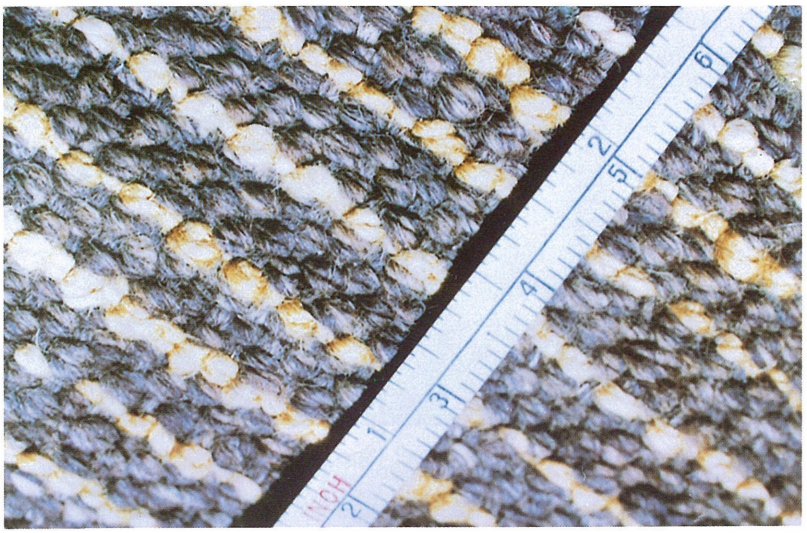


a. Pile carpet (Specimen i)

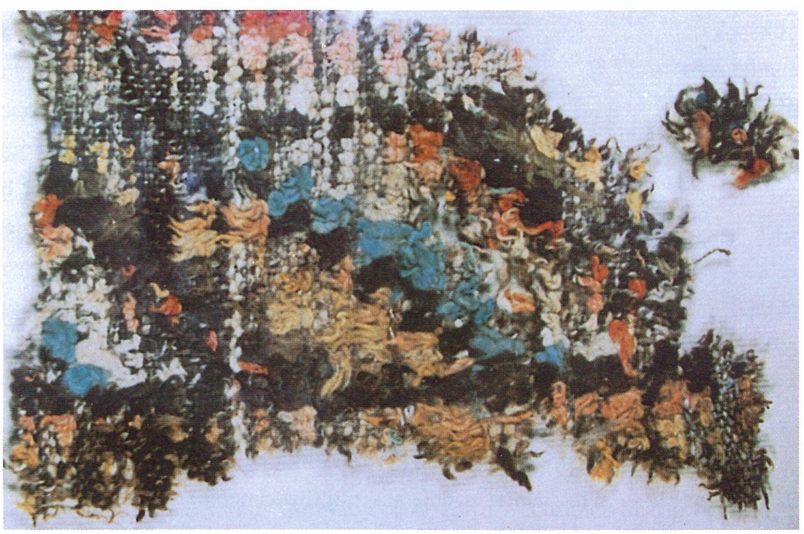
b. Horse saddle pile rug (Specimen ii)

c. A part of face (Specimen ii)

Pl. 2

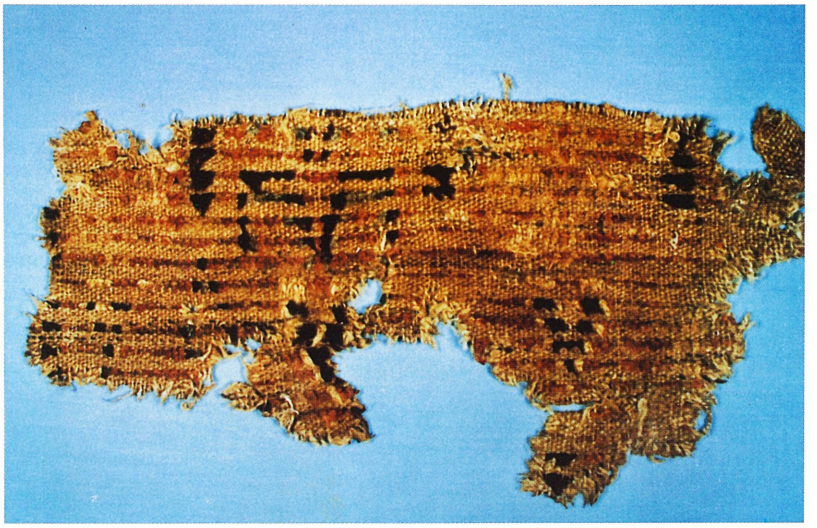


a. A part of back (Specimen ii)



b. Fragment of rhombus pattern carpet (Specimen iii)

c. Fragment of pile carpet (Specimen iv)



a. Fragment of pile carpet (Specimen v)

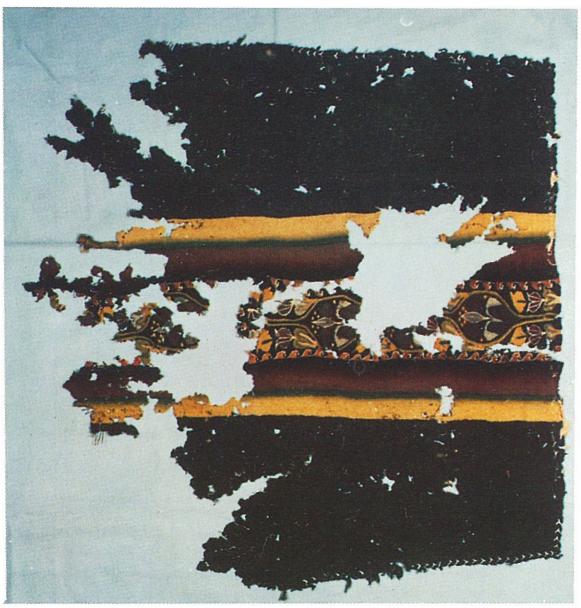
b. Fragment of pile carpet: face (Specimen vi)

c. Fragment of pile carpet: back (Specimen vi)

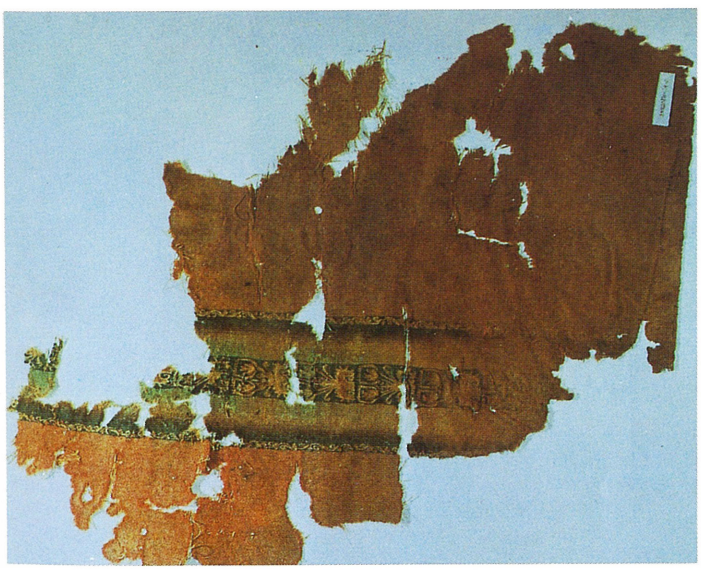
a. Fragment of double-face pile knot woolen fabric (Specimen vii)

b. Lace woven with dragonish pattern on blue-green ground (Specimen viii)

a. Lace woven with animal pattern in successive squares (Specimen ix)



c. Fragment of a skirt with patch-woven pattern and lace-type shaded color on the dark-blue ground (Specimen xi)



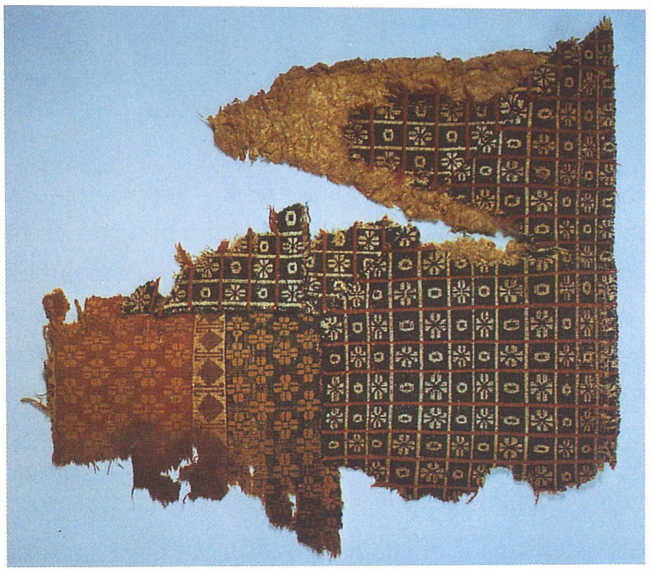
b. Fragment of a skirt with patch-woven pattern twin flowers and trailing grass of lace-type on the dark-red ground (Specimen x)

Pl. 6

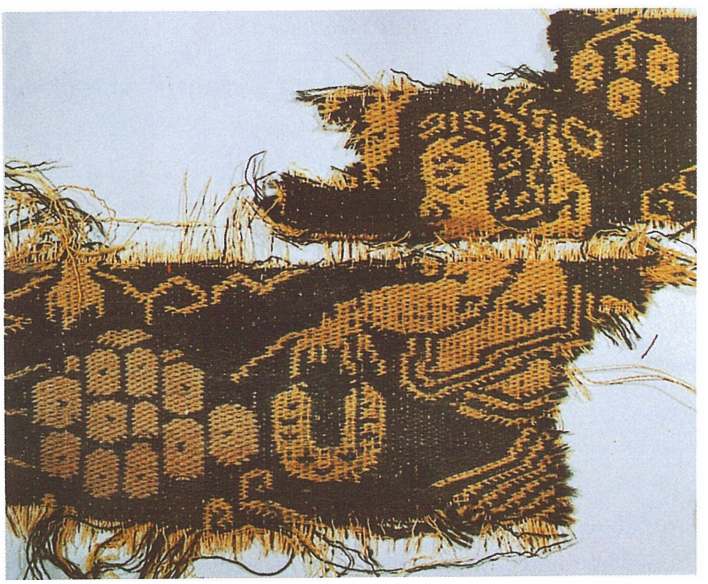
a. Fragment of gilim tapestry with patterns of a horse-man and a warrior (Specimen xii)

b. A horse-man of part pattern of Specimen xii

c. A warrior of part pattern of Specimen xii



a. Gi (綺) with four-petal flower pattern: left down part (a), the remnant (b) (Specimen xiii)



b. Fragment of Gi (綺) with human, beast and grape patterns (Specimen xiv)